

WORKING PAPER

WATER: A KEY DRIVER FOR SUSTAINABLE GROWTH

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Issam Fares Institute for Public Policy and International Affairs

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WORKING PAPER #52

WATER: A KEY DRIVER FOR SUSTAINABLE GROWTH

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INTRODUCTION

Water is a key driver for sustainable growth as it is an input to almost all production, in agriculture, industry, energy, transport, and so on. But it can also be a factor for destruction, caused by natural hazards such as drought, flood, landslides, inundation, desertification, erosion, as well as induced disasters such as epidemic, contamination, and disease. Water is a source of life and prosperity, while simultaneously being a cause of death and devastation.

Achieving basic water security, harnessing the productive potential of water, and limiting its destructive impacts, has been a constant struggle since the beginning of time. “Throughout history, water has also been a source of dispute and even conflict between uses and between users, particularly where water crosses jurisdictional boundaries at both local and larger scales”¹.

Similar to the past, water resources development and management remain at the heart of the modern struggle for growth and sustainable development in many developed and developing countries. This has been the case in all industrial countries, most of which invested heavily in water infrastructure, institutions, and management capacity in the 19th and early 20th centuries. It remains the case in many countries in the Middle East and North Africa (MENA) region today, where investments in water infrastructure development and management have been lacking and remain an urgent priority. As water becomes ever scarcer relative to demand, there are continuous fears of transboundary waters, particularly in the MENA region, becoming a source of conflict and constraining growth.

As former Director of the World Bank involved in water and infrastructure related issues for over two decades across the planet, I have a first-hand experience of water-security issues, what works, what should be done at what scale, and of course several bad experiences of poor management of this vital resource, the latter being notorious in the MENA region. Apart from being used as a political tool, water can also be a trigger for violent conflict.²

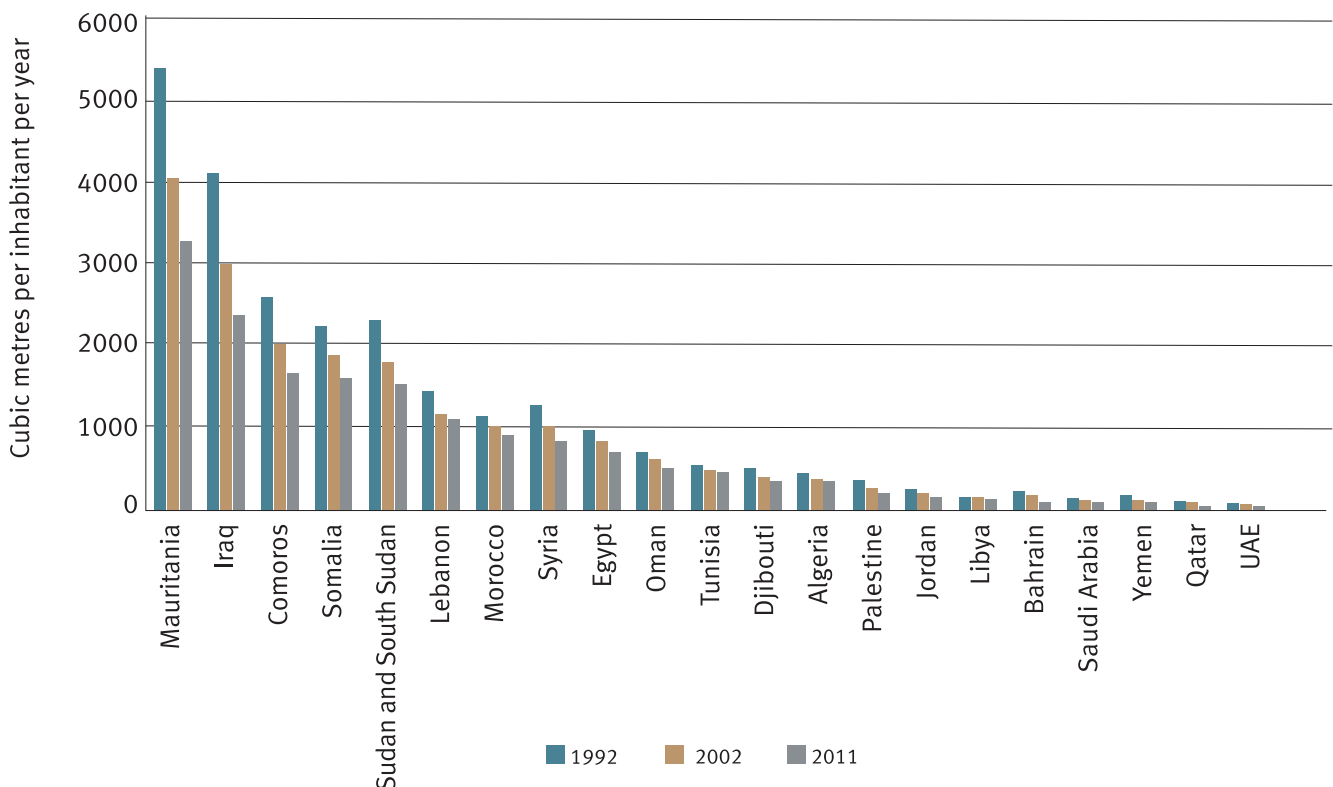
¹ Grey and Sadoff (2007). *Sink or Swim? Water security for growth and development. Water Policy 9 (2007) 545–571.* <http://cip.management.dal.ca/publications/Water%20security%20for%20growth%20and%20development.pdf>

² Saghir J (2019). *Climate Change and Conflicts in the Middle East and North Africa Region. American University of Beirut. Issam Fares Institute for Public Policy and International Affairs.* http://www.aub.edu.lb/ifi/Documents/publications/working_papers/2018-2019/20190724_climate_change_and_conflicts_in_the_middle_east_and_north_africa.pdf

DIMINISHING WATER RESOURCES: A RISK TO GROWTH AND SECURITY

MENA countries cover ten percent of the world's total land area and are home to 6% of the world's population, nevertheless they receive less than 2% of the world's renewable water supply³. With rapid population growth since the mid 1970s, this has caused dramatic contraction in per capita renewable water resources, from an average of 2,925 cubic meters per year in 1962 to 1,180 in 1992 and further to an alarming 743 in 2011, below the poverty line level of 1,000 cubic meters per year and far below the world average of 7,240 cubic meters per year (Figure 1).

MENA is now the world's driest region, with several countries being among the world's most water scarce, where per capita renewable water availability is already less than 500 cubic meters per year. These countries are Yemen, Jordan, Algeria, Libya, Tunisia, Bahrain, Kuwait, Qatar, the United Arab Emirates, the, Palestinian Territories, Saudi Arabia, and Oman. This is the level set by the World Health Organization for severe scarcity at which water becomes a hurdle to economic growth and beyond which water scarcity becomes a key concern in people's lives and begins to affect the development process⁴. World Bank estimates indicate that eleven countries in the MENA region are already withdrawing 100 percent



FAO (Food and Agriculture Organization). (2013). AQUASTAT database. Rome. www.fao.org/nr/water/aquastat/data/query/index.html

Figure 1: Total Renewable Water Resources per capita, 1992, 2002 and 2011

Source: FAO 2013

³ FAO (Food and Agriculture Organization). (2013). AQUASTAT database. Rome. www.fao.org/nr/water/aquastat/data/query/index.html.

⁴ Saghir J (2018). *Water Security and Growth: The case of the Middle East and North Africa Countries*. McGill University, Institute for the Study of International Development. Montreal. https://mcgill.ca/isid/files/isid/pb-2018-01._saghir.watersecurity.pdf

or more, sometimes substantially so, of their renewable water resources each year ⁵.

In sum, over 60 percent of MENA population live in areas of high-water stress, compared to some 35% for the rest of the world. Water stress in MENA will be severe in the next 20 years (Figure 2) as freshwater per resources per capita is estimated to continue to decline steadily (Figure 3) unless a fundamental shift occurs.

The MENA region will have to learn to do more with less – no matter what. It is better to plan for this now than have it happen through reduced growth. Water resource management and development are central to sustainable growth. It is relevant in different and complementary ways. For example, well-conceived water investments and policies would provide the basis for overall country development and associated economic opportunities, as well as create steps towards reform of the power, irrigation, and water supply sectors, with broad benefits from which all citizens can benefit. The micro-econometric literature relating to agriculture, health, industry performance, and conflict consistently finds that variations in rainfall causally impact economic outcomes ⁶.

Moreover, climate change, bringing with it greater climate variability and more frequent and severe droughts and floods, will exacerbate the already precarious situation created by chronic water scarcity. The MENA region has the greatest expected economic losses from climate-related water scarcity, estimated by the World Bank at 6–14 percent of GDP by 2050.⁷ It is home to five of the top ten countries at risk from the impacts of climate

change ⁸. By 2030 the effects of climate change will have reduced renewable water resources by another 20 percent. This is due to declining precipitation, rising water demand as temperatures mount, and expanding seawater intrusion into coastal aquifers levels, and continued groundwater overexploitation.

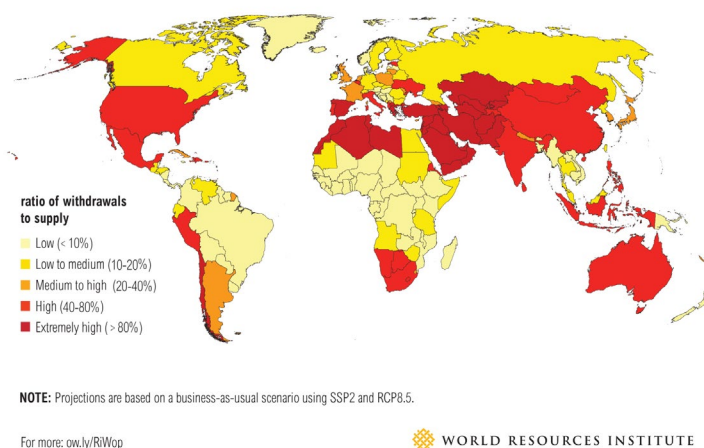


Figure 2: Water stress by county: 2040

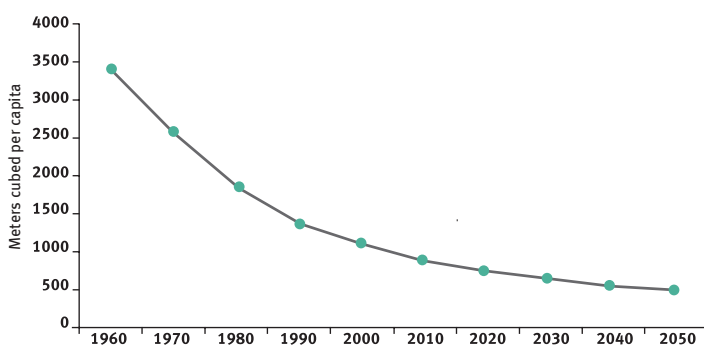


Figure 3: Trend in freshwater resources per capita in Arab countries

5 World Bank (2007). *MENA Development Report. Making the Most of Scarcity*. Washington, D.C. <https://openknowledge.worldbank.org/handle/10986/27659>

6 Damania, Desbureaux, Zaveri. (2019). *Does Rainfall Matter for Economic Growth? Evidence from Global Sub-National Data (1990-2014)*. Policy Research Working Paper; No. 8888. World Bank, Washington D.C. <https://openknowledge.worldbank.org/handle/10986/31901>

7 World Bank (2007). *MENA Development Report. Making the Most of Scarcity*. Washington, D.C. <https://openknowledge.worldbank.org/handle/10986/27659>

8 United Nations Development Programme (2013). *Water Governance in the Arab Region. Managing Scarcity and Securing the Future*. https://www.undp.org/content/dam/rbas/doc/Energy%20and%20Environment/Arab_Water_Gov_Report/Arab_Water_Gov_Report_Full_Final_Nov_27.pdf

THE CHALLENGE OF WATER SECURITY

A typical supply-led response in the region has been to harness and increase the availability of water through, for example, water diversions, over-abstraction of aquifers, damming, and desalination. Increased water diversion from transboundary rivers is a highly sensitive and political issue in the region, since most river and other surface water is already in use. The erratic rainfall and high evaporation make increased water storage capacity more difficult. Large-scale production of water through desalination worked out well in many countries and several ambitious water diversion projects (e.g. the Red Sea - Dead Sea water project) have been in the making for a long time but remain far from implementation due to political considerations and tensions in the region.

Other types of water demand-led technological responses have been to increase water use efficiency and to reuse wastewater. However, the percentage of collected wastewater that is untreated is over 50%, with only 18% being treated and reused in irrigation⁹. For instance, in Lebanon, which is struggling to provide water for its population of over 4 million in addition to 1.5 million refugees, less than 10 percent of wastewater is treated. Most collected wastewater is discharged into surface waters and the Mediterranean Sea. The country drew up a \$3 billion plan in 2012 to collect, treat, and reuse wastewater, but this has been disrupted by a lack of funding and political will to implement, as well as political instability.

Groundwater in the Arab region is considered to be the main supplier of domestic and drinking water, especially in Bahrain, Jordan, Saudi Arabia, Lebanon, Oman, Tunisia, the UAE, Yemen, and the West Bank and Gaza, contributing to about 50% of the total water supply with up to around 80% of the water supply contribution in the Gulf countries¹⁰. However, groundwater abstraction, especially in MENA countries, is unsustainable. As groundwater levels decline, abstraction becomes more energy intensive, increasing the costs of pumping.

⁹ World Bank (2007). *MENA Development Report. Making the Most of Scarcity*. Washington, D.C. <https://openknowledge.worldbank.org/handle/10986/27659>.

¹⁰ El Naser (2019). *The Political and Economic Consequences of Groundwater Depletion in the Arab Region*. Middle East Water Forum. <https://www.mewf.de/social-post/the-political-and-economic-consequences-of-groundwater-depletion-in-the-arab-region-by-dr-hazim-el-naser>

Framing the challenge of water security in MENA goes beyond single-issue indicators such as water stress, water quality, or access to water sanitation but rather includes holistic thinking about community's demands and expectations. There is growing recognition of the role that fragility and conflict can play in aggravating water insecurity; infrastructure may be seriously deteriorated, and institutions may be weakened to the point where service providers are unable to provide basic water services and incapable of managing water related hazards, resulting in riots, migration, and loss of livelihood's life.

Today the MENA region faces the fundamental challenge of trying to do more with less – not an easy endeavor due to the fragile contexts, ageing infrastructure, lack of information systems, weak institutions, and strained human and financial resources.

Moreover, water security is more complex in settings of fragility, political instability, and poor governance, all of which intensify water resources vulnerability and weaken the social contract between institutions and local communities, becoming a destabilizing force and risk multiplier. According to OECD, 28% of fragile countries met the target for access to safely managed drinking water compared to 60% for non-fragile countries. Additionally, only 18% of fragile countries progressed in meeting sanitation targets, compared to 30% of non-fragile countries¹¹.

In addition, intense conflicts, human displacement, and refugees from Iraq, Libya, Syria, and Yemen, have had massive and persistent economic costs, magnifying the challenge and worsening the water situation in many of the host countries. In 2016, there were an estimated 65.6 million people forcibly displaced around the world, of which approximately one quarter were living in countries across the MENA region¹². Over 80 percent of forcibly displaced people from the region (Syria, Iraq, Yemen) now live in towns and cities, placing additional pressure on already scarce water supplies.

The potential for a worsening water crisis exacerbated

¹¹ OECD (Organization for Economic Cooperation and Development) 2015. "States of Fragility 2015: Meeting Post-2015 Ambitions." OECD, Paris.

¹² World Bank (2017). *Cities of refuge in the Middle East: bringing an urban lens to the forced displacement challenge*. <http://documents.worldbank.org/curated/en/922371511267498593/pdf/121515-repl-CITIES-OF-REFUGEE-01242018webLATEST.pdf>

by consequences of climate change and influx of refugees is real and brings water security to the front line. Addressing it is absolutely critical for the region's future. Otherwise, a destructive and self-reinforcing vicious circle will emerge, where water shortages begin to constrain growth. In turn, slower growth means that less investment capital will be available for providing the water needed for rapidly expanding populations and the economic activity required to support them. This will further constrain growth, degrade the quality of life (especially for the poor), and possibly exacerbate social tensions, to the point where the whole development process in the MENA region over the next few years is jeopardized¹³.

More than in any other region in the world, water in MENA is a security and development issue. Over the last few decades, MENA countries have therefore responded to scarcity and stress by investing in infrastructure. Water supply coverage has increased remarkably. More than three quarters of the population in MENA countries now have access to clean water and improved sanitation, although service is often not continuous in several MENA countries (Lebanon, Jordan, Yemen). Many countries have completed major investments in water storage infrastructure and have invested heavily in expanding irrigation systems, such as in Morocco and Egypt. Furthermore, the MENA countries lead the world in applying non-traditional water technologies such as desalination. However, these investments have not always been accompanied by the necessary institutional and policy reforms to better secure water for the future, and often do not generate optimum economic returns.

The dominant threats to water security vary geographically and over time. What is clear is that water security is not a stagnant goal, it is a dynamic process affected by changing climate, political set up, growing economies, and resource degradation. Moreover, as social, cultural, political, economic priorities and values evolve, water security will evolve with them. Important questions also remain to be addressed in relation to defining development priorities and appropriate levels and mixes of investment in water resources for program design, project economic analysis, and the potentials

and constraints for MENA countries to “leapfrog” their water institutions and infrastructure while avoiding the mistakes of the past. Such objectives are achievable subject to additional focus on basic economic and financial principles.

13 Saghir J (2018). *Water Security and Growth: The case of the Middle East and North Africa Countries*. McGill University, Institute for the Study of International Development. Montreal. https://mcgill.ca/isid/files/isid/pb-2018-01._saghir.watersecurity.pdf

FINANCIAL COSTS

Despite its scarcity, the region has the world's lowest water tariffs and the highest proportion of GDP (2 percent) spent on public water subsidies.¹⁴ Average service costs exceed average service charges in most MENA countries, showing a lack of cost recovery. On average, the price charged for water in the region is about 35 percent of the cost of production for conventional surface and groundwater sources¹⁵. Low service tariffs discourage efficient use of water. Nevertheless, customers are also paying more beyond the water tariff to cope with insufficient and intermittent water supply via storage and pumping.

Cost recovery is essential to ensure long-term sustainability of water services. Sound water management requires also that users consider both the financial costs of supplying services and the costs that their use of water imposes on others (externalities as well as “opportunity costs” – which represent the true costs). Besides, non-revenue water has plagued utilities for years, in which water losses in terms of physical and commercial losses are the most pressing issues of water utilities for cost recovery. The scale of non-revenue water in MENA ranges between 40-60% of the water supply. Thus, it is important for both public utilities and users to work in parallel in order to shift this vicious cycle into a virtuous cycle.

Water service fees to cover financial costs is essential for two reasons. First, it provides the user with information on the cost of providing the service, thereby inducing more considerate use than if the service were free and encourages conservation. Second, revenues from tariffs provide financing for water resources protection, infrastructure maintenance, and ensure equitable and reliable service delivery.

The political economy of pricing is quite different for services that are local and not tradable, such as urban water supply, and for services that are inputs into products traded globally, such as irrigation water. This being said, the use of water entails more than financial costs. When one person consumes water, other potential users may be denied the opportunity and value of such use. To ensure that water is allocated and used efficiently, MENA countries must have institutional

arrangements that ensure that these opportunity costs are considered. Here, the central challenge is the development of a legal and enforceable system of water rights. Once established, such rights give rise to a series of fundamental changes:

- ▶ First, those that require additional resources (such as growing MENA cities) will frequently be able to meet their needs by acquiring the rights of those that are using water for low-value purposes.
- ▶ Second, there are strong incentives for those that use water for low-value purposes to voluntarily give up their rights, making real-location both politically attractive and practical.
- ▶ Third, establishing formal water rights gives rise to strong pressures to improve the data required to manage the resources.
- ▶ Fourth, establishing formal water rights reduces the pressures of a “race to the bottom,” because those that have rights have a powerful interest in sustaining the resources.

¹⁴ World Bank (2017). *Beyond Scarcity Water Security in the Middle East and North Africa* <https://openknowledge.worldbank.org/bitstream/handle/10986/27659/211144ov.pdf>

¹⁵ Arab Countries Water Utilities Association (2014). “*Water Utilities Reform in the Arab Region. Lessons Learned and Guiding Principles.*” ACWUA, Amman, Jordan.

ACCESS TO WATER RESOURCE DEVELOPMENT FINANCE

It is very clear that Sustainable Development Goal 6 (Ensure availability and sustainable management of water and sanitation for all) set the bar higher than the Millennium Development Goals by addressing water quality, integrated water resources management, and the whole water cycle. Today's financing landscape is not enough to cover the need for new infrastructure investments, and governments need to tap into new sources of finance to meet the growing demand of sustainable water and sanitation services. A new paradigm is thus needed that turns today's approach into new sources of finance, in addition to mobilizing domestic resources and official development assistance ODA.

In a region where water security should be a priority, we should expect that international development funding for the water resources sector in MENA would be an absolute priority for development partners.

Development finance and particularly official development assistance changed significantly in MENA in the last 20 years. Following the 2003 invasion of Iraq, the 2011 Arab uprisings, and emergence of associated conflicts in Syria, Yemen and Libya, overall official development assistance has increased.

The water sector benefited from this surge; between 2002 and 2006, funding for water resources rose dramatically. In 2003, MENA received higher volumes of disbursements for water than other regions of Africa and Asia. But this trend was quickly reversed and a few years later, in 2013, MENA received less than half the volume of disbursements to Asia¹⁶.

In fact, when analyzing the Creditor Reporting System database of OECD, excluding water reconstruction investments in Iraq, MENA was the only region to see consistent declines in water disbursement volumes

since 2006¹⁷. One can conclude that development finance for water was deprioritized after 2011 and the Arab Spring. But in fact, during the same period, in Syria, Yemen, Jordan, and the West Bank and Gaza, a declining share for water in total disbursements is associated with a significant increase in humanitarian aid disbursements. So instead of adding additional funding for humanitarian aids, donors simply reallocated a proportion of funds from regular programs to finance urgency.

Finally, in per capita terms, MENA's access to development finance for water is high compared to most other regions in the world. However, given that MENA is water stressed and compared to increasing levels of investment elsewhere in Africa and Asia, there is an absolute decline in disbursements of development finance over the last decade for water resources relative to other sectors.

16 Overseas Development Institute (2016). *Development Finance for water resources . Trends in the Middle East and North Africa*. <https://www.odi.org/sites/odi.org.uk/files/resource-documents/11171.pdf>. *This initial analysis has some limitations. Donors that do not report to DAC, including the Kingdom of Saudi Arabia and other potentially significant sources of finance, are necessarily excluded from the data. Also Data quality may also be undermined by poor or inconsistent coding of finance in reports to DAC.*

17 Organization for Economic Co-operation and Development (2016). *Creditor Reporting System database*. <http://stats.oecd.org>

THE NEED FOR A NEW COMPACT ON WATER FOR MENA

All industrialized countries invested heavily in hydraulic infrastructure and institutions to facilitate their remarkable economic growth. However, many of the inevitable tradeoffs in water resource infrastructure development were poorly structured and/or projects were poorly implemented, to the detriment of project-affected communities and local natural environments. As a consequence, in recent years a great deal of controversy has grown around water infrastructure development, and particularly large-scale hydropower water infrastructure. We have witnessed this in Lebanon in the case of the debate on Bisri Dam. This has led to a fairly general perception that water resource infrastructure development is *intrinsicly* bad for project-affected people and bad for the environment. This perception has become a barrier to financing water development.

There is no fundamental constraint to designing water development investments to ensure that local communities and the environment share real and early benefits while still allowing the economy and society at large to benefit from the growth made possible by these investments. Moreover, there is a strong consensus re-emerging that water resources development and management are essential to generate wealth, mitigate risk, and reduce poverty in order to reach the Sustainable Development Goals. However, the challenge of responsible and smart growth is to grow while at the same time embracing both environmental sustainability and social development.

A responsible path is particularly important in water development in MENA countries because, given the longevity of water infrastructure, many of these decisions will have long-term consequences. Furthermore, many decisions – both decisions to act and not to act – may have irreversible consequences¹⁸.

The call for increasing investment by governments and development partners that we are witnessing in several MENA countries is not enough. Experience shows that increasing investment as well as more effective use of such investment is crucial. An increase in financial

flows for water will happen only if governments and the external support community change the way they operate. A cornerstone for this is policy changes to be made by governments. Water - flood protection, drought protection, water and sanitation, irrigation, hydropower - must become a sector where public and private investments deliver results in an accountable, transparent, efficient, and environmentally and socially responsible manner. In most countries this requires fundamental changes by government, most crucially in providing a supportive environment for investment, ensuring that regulation is in place, transparent, predictable, and balanced.

In addition, policies relating to food security and maintaining rural/agriculture employment have led to tariff and non-tariff mechanisms to protect agriculture. This has resulted in a high percentage of water use in agriculture to grow crops that countries would sometimes be better off importing. Socially motivated policies on water subsidies threaten the financial sustainability of irrigation agencies and water supply utilities in many MENA countries.

This also calls for a plan for a change in agricultural water use. However, shifting water from agriculture to domestic and industrial use will have to involve social protection to ensure that poor farmers' households do not suffer disproportionately. If left unaddressed, it could destabilize States, inflame violence, and increase public support for extremist groups offering seemingly viable alternatives¹⁹.

Reform is crucial to sustain past and future investments. The structure of the economy and scope of reforms will affect the minimum level of institutions and infrastructure necessary for water security. Efforts that guide structural change in the economy in order to achieve greater economic resilience to water shocks can reduce water insecurity and lower the minimum platform of institutions and investment in water management.

In this context of transforming MENA economies and ensuring that water remains a key driver for growth, reforms and new compact on water should consider:

18 Saghir J. and Van Ginneken M. (2004). *Contributing authors in Responsible Growth For the New Millennium Integrating Society, Ecology and the Environment*. World Bank, Washington DC.

<https://elibrary.worldbank.org/doi/abs/10.1596/0-8213-5912-6>

19 Saghir J (2019). *Climate Change and Conflicts in the Middle East and North Africa Region*. American University of Beirut. Issam Fares Institute for Public Policy and International Affairs. http://www.aub.edu.lb/ifi/Documents/publications/working_papers/2018-2019/20190724_climate_change_and_conflicts_in_the_middle_east_and_north_africa.pdf

- ▶ **First and foremost, the introduction of sound policies, efficient pricing, and effective institutions at all levels.** The MENA region displays the greatest challenges when it comes to developing sound governance systems. In general, there is a lack of suitable legislation and properly functioning institutions, as well as unclear water and land rights. International experience shows that households are willing to pay for reliable water supply services and that higher levels of cost recovery and user involvement give utility service providers better incentives to improve service and maintain infrastructure. Governments can protect low income households from the price increases through social protection mechanisms.
- ▶ **Improve the efficiency and governance of water service providers.** Reform is not just about money; it requires attention to better management of water sustainability in MENA by using this resource in a more efficient way, decreasing the high level of non-revenue water, and shifting intermittent water supply into continuous water supply.
- ▶ **Diversify water and financial sources.** Water stress coupled with population growth and climate change in MENA intensify the vulnerability of the renewable water resources that cannot meet the future water demand. Thus, it is important to accelerate the diversification of water sources through different methods such as desalinations, water reuse, water harvesting, and others. Clearly, the status quo financing model in MENA will not deliver the SDG targets by relying mainly on public funds that are insufficient, poorly targeted, and often crowd out rather than crowd in. It should therefore turn to a new paradigm to diversify financial resources – commercial finance- that would allow governments and local governments to borrow and invest in water and sanitation infrastructure.
- ▶ **Define investment requirements.** MENA countries focused their attention in the past primarily on investments in large water and sanitation infrastructure. The high capital, operation, and maintenance costs of this infrastructure have made it more difficult to recover the cost from users and to make water utilities financially sustainable. It should therefore be reconsidered whether new investments, for wastewater and sanitation, should rely on the costly technologies that have been prevalent in the region, or whether low-cost alternatives should be used instead where appropriate. In some developing countries, such as Brazil and Pakistan, low-cost sanitation technologies have been introduced successfully by asking water users what level of service they would be willing to pay for.
- ▶ **Produce more agricultural value-added with less water** and increase production of water-efficient crops, and coordinated agriculture, trade, financial sector, land and other policies in addition to investment and policy reforms in the water sector.
- ▶ **Substantially increase water recycling and reuse.** Currently, more than half of the wastewater collected in the MENA region is returned to the environment untreated, resulting in both health hazards and wasted water resources. But positive experiences in Jordan and Tunisia show that wastewater can be safely recycled for use in irrigation and managed aquifer recharge. These new technologies combined with new policies can chart a course toward water security, but this will need to be driven by a commitment to make recycling as part of water supply.
- ▶ **Invest in water quality.** The global and MENA water crisis is not just about quantity and availability. It is also a crisis of water quality. Worsening water quality is reducing economic growth by 1/3 in some countries²⁰. Increasing populations in addition to increasing scarcity highlights the importance of dealing with water quality issues. Consequently, investing in water quality should be part of any reform program.
- ▶ **Increase user involvement in water services and water resource management,** in allocation decision-making, and strengthening the active participation by water users and civil society at large.
- ▶ **Remove inefficient water subsidies** at large and introduce smart subsidies targeting vulnerable populations.
- ▶ **Put in place frameworks that ensure environmental sustainability** of water use and investment.

20 World Bank (2019). *Quality Unknown: The invisible Water Crisis*. Washington DC. <https://openknowledge.worldbank.org/bitstream/handle/10986/32245/9781464814594.pdf?sequence=3&isAllowed=y>

- ▶ **Increase private sector participation.** As MENA governments move further towards involving the private sector in the water sector, they will have to formulate overall objectives, strategy, and priorities, including a transparent and universally applicable set of policies and standards under which private infrastructure providers are expected to operate. These standards need to define, inter alia, pricing policies, scope of competition, performance criteria, monitoring arrangements, and service quality expectations. The specifics will vary according to country and sector circumstances; what is important, however, is that private sector policies, regulations, and standards are fair and reasonable for all parties involved, that they are clear and unambiguous, and that they are dependable and not subject to arbitrary change.
- ▶ **Deepen reforms of the legal system to enable the private sector to finance water infrastructure and other projects.** Given the capital-intensive and long-term nature of water infrastructure projects, the private sector needs assurances of property rights protection, easy transferability of foreign exchange, and expeditious dispute resolution mechanisms, including international arbitration. Without these supporting reforms, private providers will demand higher returns to compensate for higher risks—which will be translated into higher prices for consumers.
- ▶ **Define risk mitigation.** The balance between risk and reward is one of the fundamental factors that motivate investors. Financial mechanisms that mitigate investors' perceptions of risk in unfamiliar country markets can thus benefit both investors and the host countries. Investors can enter these markets with greater comfort—and new host countries that might not otherwise have benefited from foreign private investment flows may move into the ranks of countries for which perceptions of risk are gradually reduced. This is especially important in MENA, where perceptions of risks have historically been high. The benefits of risk mitigation have another aspect as well—reduction of the cost of investment funds to the host country or recipient entity. Where perceptions of risk are high, private investors and lenders will seek very high returns.
- ▶ **Increase use of guarantees are almost certainly needed in order to reduce perceptions of risk.** The basic approach to risk management should be based on the principle that the party best able to manage a risk at least cost should do so. It may be necessary to unbundle the various risks so as to determine which participant is best placed to manage which risk at the lowest cost, and how the cost of mitigation can be shared equitably. Moreover, lack of appropriate term financing is widely considered a binding constraint. In most MENA countries, medium or long-term debt is not easily available from local banks or capital markets, benchmark prices for term debt are limited, and skills or experience in debt financing are limited as well. Because of the nature of their assets, most infrastructure water and wastewater projects require long-term debt financing of 15 to 20 years. Governments and/or the private sector therefore need to establish long-term financing arrangements and mechanisms for infrastructure projects. Specific new instruments—infrastructure and Mezzanine funds, or arrangements to attract private equity funds and to permit pension and insurance funds to participate in infrastructure investments—will also be important for mobilizing additional finance.

In parallel, change is needed in the way in which the external support community operates. Donors and financing agencies should support locally initiated reform efforts. This being said, it must be acknowledged that water reform is a long and difficult process, far from complete even in the richest countries of the world. Thus, financiers must not demand management perfection before investing, instead, improved management must go hand in hand with the financing of priority investments in a reinforcing package of support.

CONCLUSION

There are strong synergistic linkages between water, growth, and security policies in the MENA region. If countries adopt water policies that support growth – as several countries have already done - rather than policies that jeopardize it, the resulting growth could in turn eventually resolve the region's water needs. However, this requires a new and radical approach to water resources management.

Financing water development and delivery is not a panacea. To be effective, it must be complemented by tangible policy improvements on the ground. MENA countries will need to strengthen the capacity of their institutions for better management and development of water resources. For its part, the international development community must continue to help MENA countries harness the true potential of water as an engine of sustainable economic growth. It must focus on the productive role of water as a major catalyst for economic integration and cooperation at all levels, from villages to international river basins. Such assistance though, should be tailored to each country's circumstances and be consistent with the SDG objectives of these countries. There is no “one size fits all” approach, especially in terms of service delivery.

To realize better and sustainable water management for achieving strong economic growth, more is needed to enhance the role of the private sector and civil society. Actions by governments and the international community are only part of the solution to solve the most serious water challenges. Under an effective policy and regulatory framework, the private sector could play a greater role in supplying cost effective and quality water service, as well as in harnessing and developing new technologies that enhance water security. Civil society, academia, and the media also have important contributions to make. Much greater public information is needed to educate people about the availability of water resources and the costs and consequences of water use and practices.

In short, both MENA countries and the international community need to comprehend water as a political, economic, and security issue in the region that plays a profound role in the future of the region and its growth and development, and therefore take more concerted action now.

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